

### Abstract

The invention relates to a method for preventing contamination on the surfaces of optical elements comprising a multi-layer system, during the exposure thereof to radiation at signal wave lengths in an evacuated closed system comprising a residual gas atmosphere, whereby the photocurrent generated by means of photo emission from the radiated surface of the multi-layer system is measured. The photocurrent is used to regulate the gas composition of the residual gas. The gas composition is altered according to at least one lower and one upper threshold value of the photocurrent. The invention also relates to a device for regulating the contamination on the surface of at least one optical element during exposure and an EUV-lithographic device and a method for cleaning the surfaces of the optical elements contaminated by carbon.